

WHAT IS CLAIMED IS:

1. A data input device comprising:  
a finger touch sensing surface;  
wherein said finger touch sensing surface is configured to produce a visual feedback in response to a touching of said touch inputs, said visual feedback indicating an absolute location that said finger touch sensing surface was touched by a finger.
2. The data input device of claim 1, wherein said data input device is configured to provide a function of a traditional input device.
3. The data input device of claim 2, wherein said function of a traditional input device includes a functionality of one of a mouse, a keyboard, or a stylus.
4. The data input device of claim 1, wherein said finger touch sensing surface comprises one of a virtual switch device, a touch pad, an air gap virtual switch, or a rubber feet virtual switch.
5. The data input device of claim 1, wherein said visual feedback comprises one of an icon on a visual display or a highlighted key on a virtual keyboard.
6. The data input device of claim 5, wherein said virtual keyboard comprises one of a QWERTY keyboard or a cell phone keypad.
7. The data input device of claim 1, wherein said finger touch sensing surface is configured to:  
simultaneously sense a touching of multiple fingers; and  
produce an independent visual feedback corresponding to an absolute position of each of said multiple fingers on said finger touch sensing surface.
8. The data input device of claim 7, wherein said data input device is configured to perform a functionality of a keyboard.

9. The data input device of claim 8, wherein said visual feedback comprises a highlighting of a key on a virtual keyboard.

10. The data input device of claim 8, wherein said finger touch sensing surface further comprises a textured surface, wherein said textured surface simulates keys of a “QWERTY” keyboard.

11. The data input device of claim 1, wherein said data input device is further configured to:

interpret an active graphical display; and

map a plurality of selectable objects onto said finger touch sensing surface, wherein said selectable objects may be interactively selected by touching a corresponding location on said touch sensing surface.

12. The data input device of claim 11, wherein said selectable objects comprise buttons graphically represented on a display device.

13. The data input device of claim 12, wherein said buttons comprise cell phone keypad buttons.

14. The data input device of claim 12, wherein said buttons comprise keyboard buttons.

15. The data input device of claim 12, wherein said data input device is further configured to:

assign an initial button to each finger that touches said finger touch sensing surface;

and

modify said assigned button in response to a movement of said finger.

16. The data input device of claim 15, wherein said initial button assignment comprises assigning a plurality of reference keys to an initial finger placement.

17. The data input device of claim 16, wherein said plurality of reference keys comprise an "A," an "S," a "D," an "F," a "J," a "K," an "L," and a ";" key.

18. The data input device of claim 17, wherein said data input device is further configured to:

arrange a remaining set of keys on a traditional keyboard in a spatial relationship to said plurality of reference keys.

19. The data input device of claim 17, wherein said plurality of reference keys are assigned in a non-linear configuration.

20. The data input device of claim 15, wherein said assigned button modification comprises:

sensing an absolute position change of a sensed finger in a first direction; and  
changing said button assignment from said initial button to a button adjacent to said initial button in said first direction.

21. The data input device of claim 1, wherein said data input device is configured to form a part of one of a phone, a watch, a palm personal computer (PC), a tablet PC, a PC, a thumb keyboard, a laptop, a digital camera, a camcorder, or a personal digital assistant (PDA).

22. The data input device of claim 1, wherein said finger touch sensing surface comprises a plurality of touch type zones.

23. A data input device comprising:  
a finger touch sensing surface;  
wherein said finger touch sensing surface is configured to produce a visual feedback in response to a touching of said touch inputs, said visual feedback indicating an absolute location that said finger touch sensing surface was touched by a finger; and

wherein said finger touch sensing surface is configured to simultaneously sense a touching of multiple fingers and produce an independent visual feedback corresponding to an absolute position of each of said multiple fingers on said finger touch sensing surface.

24. The data input device of claim 23, wherein said data input device is configured to provide a function of a traditional input device.

25. The data input device of claim 24, wherein said function of a traditional input device includes a functionality of one of a mouse, a keyboard, or a stylus.

26. The data input device of claim 23, wherein said finger touch sensing surface comprises one of a virtual switch device, a touch pad, an air gap virtual switch, or a rubber feet virtual switch.

27. The data input device of claim 23, wherein said visual feedback comprises one of an icon on a visual display or a highlighted key on a virtual keyboard.

28. The data input device of claim 27, wherein said virtual keyboard comprises one of a QWERTY keyboard or a cell phone keypad.

29. The data input device of claim 28, wherein said finger touch sensing surface further comprises a textured surface, wherein said textured surface simulates keys of a “QWERTY” keyboard.

30. The data input device of claim 23, wherein said data input device is further configured to:

interpret an active graphical display; and

map a plurality of selectable objects onto said finger touch sensing surface, wherein said selectable objects may be interactively selected by touching a corresponding location on said touch sensing surface.

31. The data input device of claim 30, wherein said selectable objects comprise buttons graphically represented on a display device.

32. The data input device of claim 31, wherein said buttons comprise cell phone keypad buttons.

33. The data input device of claim 31, wherein said buttons comprise keyboard buttons.

34. The data input device of claim 31, wherein said data input device is further configured to:

assign an initial button to each finger that touches said finger touch sensing surface;  
and  
modify said assigned button in response to a movement of said finger.

35. The data input device of claim 34, wherein said initial button assignment comprises assigning a plurality of reference keys to an initial finger placement.

36. The data input device of claim 35, wherein said plurality of reference keys comprise an "A," an "S," a "D," an "F," a "J," a "K," an "L," and a ";" key.

37. The data input device of claim 36, wherein said data input device is further configured to:

arrange a remaining set of keys on a traditional keyboard in a spatial relationship to said plurality of reference keys.

38. The data input device of claim 36, wherein said plurality of reference keys are assigned in a non-linear configuration.

39. The data input device of claim 34, wherein said assigned button modification comprises:

sensing an absolute position change of a sensed finger in a first direction; and

changing said button assignment from said initial button to a button adjacent to said initial button in said first direction.

40. The data input device of claim 23, wherein said data input device is configured to form a part of one of a phone, a watch, a palm personal computer (PC), a tablet PC, a PC, a thumb keyboard, a laptop, a digital camera, a camcorder, or a personal digital assistant (PDA).

41. The data input device of claim 23, wherein said finger touch sensing surface comprises a plurality of touch type zones.

42. A computing device comprising:  
a processor;  
a display screen communicatively coupled to said processor; and  
a data input device communicatively coupled to said processor, wherein said data input device includes a finger touch sensing surface, wherein said finger touch sensing surface is configured to produce a visual feedback signal in response to a touching of said touch sensing surface, said visual feedback signal being configured to cause said processor to graphically display a visual feedback on said display screen indicating an absolute location that said finger touch sensing surface was touched by a finger.

43. The computing device of claim 42, wherein said computing device comprises one of a cell phone, a PDA, a keyboard, a palm PC, tablet PC, a PC, a watch, a thumb keyboard, a laptop, a camera, or a video recorder.

44. The computing device of claim 42, wherein said wherein said finger touch sensing surface is configured to simultaneously sense a touching of multiple fingers and produce an independent visual feedback corresponding to an absolute position of each of said multiple fingers on said finger touch sensing surface..

45. The computing device of claim 42, wherein said data input device is configured to provide a function of one of a mouse, a keyboard, or a stylus.

46. The computing device of claim 42, wherein said finger touch sensing surface comprises one of a virtual switch device, a touch pad, an air gap virtual switch, or a rubber feet virtual switch.

47. The computing device of claim 42, wherein said visual feedback comprises one of an icon on a visual display or a highlighted key on a virtual keyboard.

48. The computing device of claim 47, wherein said virtual keyboard comprises one of a QWERTY keyboard or a cell phone keypad.

49. The computing device of claim 48, wherein said finger touch sensing surface further comprises a textured surface, wherein said textured surface simulates keys of a “QWERTY” keyboard.

50. The computing device of claim 42, wherein said computing device is further configured to:

interpret an active graphical display generated on said display screen; and  
map a plurality of selectable objects onto said finger touch sensing surface, wherein said selectable objects may be interactively selected by touching a corresponding location on said touch sensing surface.

51. The computing device of claim 50, wherein said selectable objects comprise buttons graphically represented on said display screen.

52. The computing device of claim 51, wherein said buttons comprise cell phone keypad buttons.

53. The computing device of claim 51, wherein said buttons comprise keyboard buttons.

54. The computing device of claim 51, wherein said processor is configured to: assign an initial button to each finger that touches said finger touch sensing surface; and  
modify said assigned button in response to a movement of said finger.

55. The computing device of claim 54, wherein said initial button assignment comprises assigning a plurality of reference keys to an initial finger placement.

56. The computing device of claim 55, wherein said data input device is further configured to arrange a remaining set of keys on a traditional keyboard in a spatial relationship to said plurality of reference keys.

57. The computing device of claim 55, wherein said plurality of reference keys are assigned in a non-linear configuration.

58. The computing device of claim 54, wherein said assigned button modification comprises:

sensing an absolute position change of a sensed finger in a first direction;  
changing said button assignment from said initial button to a button adjacent to said initial button in said first direction; and  
modifying said visual feedback signal according to said changed button assignment.

59. The computing device of claim 42, wherein said finger touch sensing surface comprises a plurality of touch type zones.

60. A method for providing visual feedback comprising:  
sensing a touch of a touch sensing surface;  
transmitting a signal representing an absolute position said touch sensing surface was touched; and  
graphically representing said absolute position on a display device.



61. The method of claim 60, further comprising:  
simultaneously sensing a plurality of touches on said touch sensing surface; and  
graphically representing an absolute position of each of said plurality of touches on a display device.

62. The method of claim 60, wherein said graphically representing said absolute position on a display device comprises:  
generating a soft keyboard; and  
highlighting a key of said soft keyboard, said key being spatially related to said absolute position of said touch.

63. The method of claim 60, wherein said graphically representing said absolute position on a display device comprises:  
generating an icon on said display device;  
wherein said icon is created in a spatially accurate position on said display device corresponding to an absolute position of said touch on said touch sensing surface.

64. A method for selecting a virtual button on a soft keyboard comprising:  
assigning an initial button to a finger that touches a finger touch sensing surface, said assignment corresponding to an absolute position of said touch of said finger touch sensing surface; and  
modifying said assigned button in response to a movement of said finger.

65. The method of claim 64, wherein said step of assigning an initial button to a finger comprises assigning a plurality of reference keys to a plurality of initial finger placements.

66. The method of claim 65, wherein said plurality of reference keys comprise an "A," an "S," a "D," an "F," a "J," a "K," an "L," and a ";" key.

67. The method of claim 56, further comprising arranging a remaining set of keys on a traditional keyboard in a spatial relationship to said plurality of reference keys.

68. The method of claim 66, wherein said plurality of reference keys are assigned in a non-linear configuration.

69. The method of claim 64, wherein said step of modifying said assigned button comprises:  
sensing an absolute position change of a sensed finger in a first direction; and  
changing said button assignment from said initial button to a virtual button adjacent to said initial button in said first direction.

70. A method for touch typing with a finger touch sensing input device comprising:  
assigning a reference key to each of a plurality of sensed finger touches, said reference keys including one or more of an "A," an "S," a "D," an "F," a "J," a "K," an "L," and a ";" key;  
positionally assigning additional keys on said finger touch sensing input device in spatially relation to said reference keys;  
displaying a soft keyboard on a display device; and  
highlighting said assigned reference keys.

71. The method of claim 70, further comprising identifying fingers associated with said sensed finger touches.

72. The method of claim 71, wherein said step of identifying said fingers comprises:  
scanning said finger touch sensing input device from a middle position of said finger touch sensing device;  
assigning a first sensed finger to either side of said middle position as an index finger;  
assigning a second sensed finger on either side of said middle position as a middle finger;  
assigning a third sensed finger on either side of said middle position as a ring finger;  
and

assigning a fourth sensed finger on either side of said middle position as a pinky finger.

73. The method of claim 70, wherein said plurality of sensed finger touches are in a non-linear orientation.

74. The method of claim 70, further comprising dividing said finger touch sensing device into a plurality of touch type zones, each zone being configured to sense a plurality of finger touches from a single hand.

75. The method of claim 74, further comprising independently assigning reference keys in each of said touch type zones.

76. The method of claim 70, wherein said additional keys are assigned to maximize an area of said additional keys.

77. The method of claim 70, further comprising switching to an active space mode if said positionally assigned keys have excessive overlap.

78. The method of claim 70, further comprising defining an acceptable first touch region within said finger touch sensing device.

79. A method for providing visual feedback from an input device comprising:  
sensing multiple touches on a finger touch sensing device;  
generating a designated icon based on a movement of said multiple touches, said icon corresponding to a function assigned to said movement.

80. The method of claim 79, wherein said icon comprises a hand icon configured to perform multiple hand gestures.

81. The method of claim 80, wherein said function comprises one of a cut function, a move function, a paste function, a copy function, or a drop function.

82. The method of claim 79, further comprising generating a plurality of designated icons, wherein each of said icons corresponds to touches from a single hand.

83. A method for providing visual feedback from an input device comprising:  
sensing multiple finger contact on a finger touch sensing device;  
interpreting said multiple finger contact;  
correlating said finger contact interpretation with a function to be performed; and  
generating a cursor in response to said correlation, wherein said cursor is a unique characteristic cursor representative of said function to be performed.

84. The method of claim 83, further comprising generating a pointer icon in response to a sensing of a single finger on said finger touch sensing device.

85. The method of claim 83, further comprising generating a pencil icon in response to a sensing of two fingers closely joined on said finger touch sensing device, wherein said pencil icon is configured to facilitate freehand drawing.

86. The method of claim 83, further comprising generating an eraser icon in response to a sensing of three fingers on said finger touch sensing device.

87. The method of claim 83, further comprising generating a ruler icon in response to a sensing of two fingers spread apart on said finger touch sensing device.

88. A data input device comprising:  
a means for sensing a finger touch on a surface;  
wherein said sensing means is configured to produce a visual feedback in response to a sensed touching, said visual feedback indicating an absolute location that said sensing means was touched by a finger.

89. The data input device of claim 88, wherein said data input device is configured to provide a function of one of a mouse, a keyboard, or a stylus.

90. The data input device of claim 88, wherein said means for sensing a finger touch on a surface comprises one of a virtual switch device, a touch pad, an air gap virtual switch, or a rubber feet virtual switch.

91. A computing device comprising:  
a means for processing data;  
a means for displaying communicatively coupled to said means for processing data;  
and  
a means for inputting data communicatively coupled to said means for processing data, wherein said means for inputting data includes a means for sensing a finger touch on a surface, wherein said means for sensing a finger touch on a surface is configured to produce a visual feedback signal in response to a touching of said means for sensing a finger touch on a surface, said visual feedback signal being configured to cause said processing means to graphically display a visual feedback on said display means indicating an absolute location that said sensing means was touched by a finger.

92. The computing device of claim 91, wherein said computing device comprises one of a cell phone, a PDA, a keyboard, a palm PC, tablet PC, a PC, a watch, a thumb keyboard, a laptop, a camera, or a video recorder.

93. A processor readable medium having instructions thereon for:  
sensing a touch of a touch sensing surface;  
transmitting a signal representing an absolute position said touch sensing surface was touched; and  
graphically representing said absolute position on a display device.

94. The processor readable medium of claim 93, further comprising instructions for:  
simultaneously sensing a plurality of touches on said touch sensing surface; and  
graphically representing an absolute position of each of said plurality of touches on a display device.

95. The processor readable medium of claim 93, further comprising instructions thereon for:

generating a soft keyboard; and

highlighting a key of said soft keyboard, said key being spatially related to said absolute position of said touch.

96. The processor readable medium of claim 93, further comprising instructions thereon for:

generating an icon on said display device;

wherein said icon is created in a spatially accurate position on said display device corresponding to an absolute position of said touch on said touch sensing surface.

97. A data input device comprising:

a finger touch sensing surface;

wherein said finger touch sensing surface is configured to produce a visual feedback directly on said finger touch sensing surface in response to a touching of said touch sensing surface, said visual feedback indicating an absolute location that said finger touch sensing surface was touched by a finger; and

wherein said visual feedback includes a cursor visibly positioned close to said absolute location.

98. The data input device of claim 97, wherein said visual feedback further comprises a highlighting of a key on a virtual keyboard when said cursor is placed above said key.

99. The data input device of claim 98, wherein said highlighted key on said virtual keyboard may be selected by a cessation of said touching while said key is highlighted.